

438/287,288
769, 770

DOCUMENT-IDENTIFIER: US 20010034096 A1

TITLE: Methods to form electronic devices

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A first electrode and a doped oxide layer laterally proximate thereof are provided over a substrate. A silicon nitride layer is formed over both the doped oxide layer and the first electrode to a thickness of no greater than 80 Angstroms over at least the first electrode by low pressure chemical vapor deposition at a pressure of at least 1 Torr, a temperature of less than 700.degree. C. and using feed gases comprising a silicon hydride and ammonia. The substrate with silicon nitride layer is exposed to oxidizing conditions comprising at least 700.degree. C. to form a silicon dioxide layer over the silicon nitride layer, with the thickness of silicon nitride over the doped oxide layer being sufficient to shield oxidizable substrate material beneath the doped oxide layer from oxidizing during the exposing. A second electrode is formed over the silicon dioxide layer and the first electrode. In another implementation, a layer comprising undoped oxide is formed over a doped oxide layer. A first electrode is formed proximate the undoped oxide layer and the undoped oxide layer. With the undoped oxide layer being outwardly exposed, a silicon nitride layer is formed on the undoped oxide layer and over the first electrode by low pressure chemical vapor deposition to a thickness of no greater than 80 Angstroms. Also disclosed are methods of forming transistor gate constructions and methods of forming electronic device

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	20512	(first adj electrode) and (second adj electrode)	USPAT	2002/08/21 08:42
2	BRS	L2	35854	(first adj electrode) and (second adj electrode)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:43
3	BRS	L3	302	2 and oxynitride	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:43
4	BRS	L4	43	3 and (gate adj dielectric)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:43
5	BRS	L5	33	4 and (silicon adj dioxide)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:44
6	BRS	L6	11	5 and (re-oxidize or re-oxidizing or re-oxidation)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:47

	Type	L #	Hits	Search Text	DBs	Time Stamp
7	BRS	L7	5	6 and ((rapid adj thermal) or (rapid adj anneal))	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 08:48
8	BRS	L8	5	7 and (oxynitride)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:11
9	BRS	L9	31729	oxygen-containing	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:12
10	BRS	L10	301	9 and ((rapid adj anneal) or (rapid adj thermal))	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:12
11	BRS	L11	84	10 and oxynitride	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:21

	Type	L #	Hits	Search Text	DBs	Time Stamp
12	BRS	L13	1186	(anneal or annealing or annealed or thermal) same (gate adj dielectric)	USPAT	2002/08/21 09:22
13	BRS	L14	157	13 and (conductive adj gate)	USPAT	2002/08/21 09:22
14	BRS	L15	84	14 and (silicon adj dioxide)	USPAT	2002/08/21 09:35
15	BRS	L17	400	oxygen adj containing adj plasma	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:36
16	BRS	L18	291	17 and (oxygen-containing)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:36
17	BRS	L19	17	18 and (gate adj dielectric)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:41
18	BRS	L20	0	((re adj2 oxidizing) or (re adj3 oxidation) or (re adj3 oxidize)) same mixture same N20 same H2	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:43

	Type	L #	Hits	Search Text	DBs	Time Stamp
19	BRS	L21	170	((re adj2 oxidizing) or (re adj3 oxidation) or (re adj3 oxidize)) same mixture	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:43
20	BRS	L25	3	21 and H2	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:44
21	BRS	L29	1504	((re-oxidizing) or (re-oxidize) or (re-oxidation))	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:46
22	BRS	L30	150	29 same mixture	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:54
23	BRS	L32	1	N2O/H2	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:57

	Type	L #	Hits	Search Text	DBs	Time Stamp
24	BRS	L34	14424	(stablizing or stablize or stablized or stable) same (nitrogen)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:59
25	BRS	L35	2347	34 and plasma	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:58
26	BRS	L36	107	35 and (oxygen-containing)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:58
27	BRS	L37	1238	(stablizing or stablize or stablized or stable) near3 (nitrogen)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 09:59
28	BRS	L38	60	37 and (silicon adj dioxide)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 10:00

	Type	L #	Hits	Search Text	DBs	Time Stamp
29	BRS	L39	5	38 and (oxynitride)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 10:03
30	BRS	L40	4660	(forming or form or formed) near10 (oxygen-containing)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 10:04
31	BRS	L41	21	(form or forming or formed) same (uniform adj nitrogen)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 10:23
32	IS&R	L42	706	(438/287,288,769,770).CCLS.	USPAT	2002/08/21 10:23
33	BRS	L43	26	42 and ((re-oxidizing) or (re-oxidation))	USPAT	2002/08/21 10:24

	Type	L #	Hits	Search Text	DBs	Time Stamp
1	BRS	L1	23016	oxygen-containing	USPAT	2002/08/21 14:18
2	BRS	L2	48751	oxygen adj3 containing	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:19
3	BRS	L3	217	2 and (re adj3 (oxidize or oxidizing or oxidation))	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:20
4	BRS	L4	8	3 and (oxynitride)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:25
5	BRS	L5	0	(re adj3 (oxidize or oxidized or oxidizing or oxidation)) same (rapid adj3 (thermal or anneal or annealing)) same (plasma adj3 induced)	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:27
6	BRS	L6	28	(re adj3 (oxidize or oxidized or oxidizing or oxidation)) same (rapid adj3 (thermal or anneal or annealing))	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:29

	Type	L #	Hits	Search Text	DBs	Time Stamp
7	BRS	L7	5	6 same oxynitride	USPAT; US-PGP UB; EPO; JPO; DERWEN T; IBM_TD B	2002/08/21 14:30
8	BRS	L8	253	(oxidizer or oxidizers) near10 (hydrogen same hydrogen)	USPAT	2002/08/21 14:31
9	BRS	L9	2	8 and oxynitride	USPAT	2002/08/21 14:39